Mackert, Susan (DEQ)

From: Mackert, Susan (DEQ)
Sent: Monday, May 05, 2014 3:11 PM
To: Cathy C Taylor (Services - 6)
Cc: Faha, Thomas (DEQ); Kenneth Roller (Services - 6)
Subject: RE: Possum Point - Additional Information for Ash Ponds A B and C

Thanks Cathy. I appreciate the additional information.

Susan

Susan Mackert
Water Permit Writer, Senior II
Regional Industrial Storm Water Coordinator
Certified Erosion and Sediment Control Inspector #2804
Virginia Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193
Phone: (703) 583-3853
Fax: (703) 583-3821
susan.mackert@deq.virginia.gov

From: Cathy C Taylor (Services - 6) [mailto:cathy.c.taylor@dom.com]
Sent: Friday, May 02, 2014 4:12 PM
To: Mackert, Susan (DEQ)
Cc: Faha, Thomas (DEQ); Kenneth Roller (Services - 6)
Subject: Possum Point - Additional Information for Ash Ponds A B and C

Susan,

Attached is a letter to you summarizing some additional information concerning Possum Point ponds A, B and C. You will receive a hard copy by mail.

Please contact Ken or me with your questions.

Cathy Taylor
Director, Electric Environmental Services
5000 Dominion Blvd.
Glen Allen, VA 23060
(804) 273-2929

Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
Web Address: www.dom.com

Dominion®

May 2, 2014

Ms. Susan Mackert
Department of Environmental Quality
13901 Crown Court
Woodbridge, VA 22193

Dear Ms. Mackert,

Thank you for providing the April 15, 2014 memorandum summarizing your field observations from the April 11, 2014 and April 15, 2014 site visits to the Possum Point Power Station. We wanted to provide clarifying information relative to ash ponds A, B, C to ensure you have the most accurate information about how the ponds have been permitted, the times that they were in use, their capacity, and the integrity of the berm.

Concerning permitting, the drainage area containing Ash Ponds A, B and C and the associated storm water outfall (Outfall S104) for the area were addressed in Possum Point's historical and current permitting documents. A summary of the permitting history since 1991 is enclosed. As these permitting documents have shown, the coverage of this area has evolved in our SWPPP as the storm water requirements and our understanding has evolved. We would be happy to discuss this further with you if you need additional information.

Concerning the time frames various ponds were used, ash pond D was constructed and put into service before 1966, but the exact date is unknown. (The original ash pond D is shown as constructed on USGS maps in 1966). Ash pond D replaced ponds A, B and C. Accordingly, based on this construction date, we believe that ash ponds A, B and C were no longer active in 1966. Ash pond D was later expanded in 1988.

Concerning the amount of ash in ash ponds A, B, & C, they were designed as a contiguous area with the decant structure located in Ash Pond C. The quantity of ash deposited in the ash pond complex is approximately 170,000 cu yds. The acreage of the ash pond complex is approximately 12 acres.

Finally, there is moisture in discrete locations along the toe of the berm, but not along the entire length. This is not a structural concern since there is no evidence of seepage up the berm surface indicating a compromise of the berm other than the area identified where the erosion was observed. As for the area of erosion, we are pursuing the appropriate approvals to repair this area of the side slope.

Please contact Ken Roller or me to discuss any questions that you have about this information.

Sincerely,

Cathy C. Taylor
Director Electric Environmental Services

Permitting of discharge associated with Ash Pond C: Chronological history

1991 - VPDES permit reissued with effective date May 8. Permit and Fact Sheet do not contain any reference to Ponds A, B, & C. Stormwater requirements not included in individual permit.

1992- VPDES Individual Permit Application was submitted on 9/25/ 1992. VA#S104 was included in the permit application as a stormwater outfall. Form 2F monitoring was included in the application for that outfall.

1993- DEQ indicated that they will cover the stormwater outfall under a general permit in the next reissuance.

1995- VAR3 registration statement was submitted for stormwater outfalls, and individual application for the rest of the outfalls.

1996 - VPDES Storm Water General Permit (Permit No. VAR330109) issued with date of coverage March 12, 1996. Permit contained Part I. pages for "coal" and "oil" handling sites at steam electric generating facilities (other than coal pile runoff), with associated effluent monitoring requirements. The permit also contained a requirement to develop a storm water pollution prevention plan.

1996 - Storm Water Pollution Prevention Plan dated March 14, 1996 contains the following description of storm water Outfall S104. The plan clearly identifies the location of the old ponds but concludes no potential for contaminants due to nature of drainage area that time.

VA# S104

Outfall and Drop Inlets (pipes) and [manholes]: (103) VA# S104 < (102)

Outfall Location: Latitude 38° 32' 34", Longitude 77° 16' 45"

Description: Outfall VA# S104 is a 30" concrete pipe which is integral to an inactive decant structure that previously served Ash Ponds A, B, and C. The drainage area associated with VA# S104 is approximately 43.8 acres with 50% cleared, 10%, highway, 25% medium woods, and 15% brush. Three drainage areas contribute runoff to this outfall:

1. A small drainage area (two acres) located on the northwest side of the intersection of Possum Point Road and Cockpit Point Road contributes runoff to VA# S104 via pipe #102. This area consists of 5% cleared, 30% highway, and 65% medium woods.

2. Approximately 16.9 acres just northwest of area 1 above, and bounded to the southwest by Possum Point Road, contributes runoff to VA# S104 via pipe #103. This area contains approximately 5% cleared, 5% highway, 35% brush, and 55% medium woods.

3. Approximately 25 acres (43.8 acres total minus 16.9 acres #103 and 2 acres #102) located west of drainage areas 1 and 2 above across Possum Point Road. It is within this drainage area that the old Ash Ponds A, B, and C were located.

Potential Contaminants: None

1996 - VPDES permit reissued with and effective date of August 9, 1996. Permit does not contain specific reference to ponds A, B, C, but does include requirement for development of SWPPP.

1999- VAR5 registration statement was submitted for stormwater outfalls. VA#S104 was included in the permit application as a stormwater outfall. Individual permit for the rest of the outfalls.

2001 - Reissued VPDES Permit reissued effective date September 13. Previous permit had required development of a storm water pollution prevention plan. This permit also contained a condition (G. Storm Water Management) requiring that the SWPPP be updated.

2004 - VPDES permit modified to incorporate wastewater discharges associated with the new Unit 6.

2006 – Application for renewal of Possum Point's discharge permit submitted March 2006. The application includes a description of Outfall S104 and associated drainage area that is essentially identical to the one from 1996 SWPPP above.

2007 - VPDES permit reissued effective October 24, 2007. There is no specific reference to Outfall 104 in the permit; however, Table 3 of the Fact Sheet developed by DEQ to support the permit contains a list of stormwater outfalls and drainage area descriptions that include S104.

2008 – Possum Point's Stormwater Pollution Prevention Plan (SWPP) was updated and Outfall S104 no longer specifically recognized in the plan. The drainage areas contributing to S104 are shown as sheet flow. **NOTE: This was likely done given the status of ponds A, B, and C at that time and previous determinations concerning the lack of potential for pollutants to be present in the discharge.**

2012 - Application for reissuance of Possum Point's VPDES permit submitted April 5. Form 2F lists 15 stormwater discharges from Possum Point. S104 is not included on the list. The application includes the Stormwater Pollution Prevention Plan (SWPPP), which had been updated in 2011 and continued to show the drainage area associated with ponds A, B, & C as sheet flow. The list of Outfalls in the SWPPP is identical to the list in Form 2F and does not include S104.

2013 - Possum Point's VPDES permit is reissued and does not specifically reference the discharge from Pond C.

Dominion

Susan Mackert	703-583-3853	susan.mackert@deq.virginia.gov
RICHARD DOUCETTE	703-583-3813	richard.doucette@deq.virginia.gov
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Possum Point Power Station
Ash Ponds Timeline

- **1955** –Ash Ponds ABC completed and received ash
- **Early 1960's** – Original Ash Pond D completed. Stopped depositing ash in Ponds ABC and moved daily ash disposal to Pond D **
- **1967** – Ash Pond E construction completed, stopped depositing ash in Pond D and moved daily ash disposal to Pond E
- **1988** – New Ash Pond D construction completed
- **Starting 1988** - Periodically dredged Pond E ash contents into new Pond D as required

***Historical USGS topographic maps do not show Original Pond D in 1956 but do show it in 1966.*

Permitting of discharge associated with Ash Pond C: Chronological history

1991 - VPDES permit reissued with effective date May 8. Permit and Fact Sheet do not contain any reference to Ponds A, B, & C. Stormwater requirements not included in individual permit.

1996 - VPDES Storm Water General Permit (Permit No. VAR330109) issued with date of coverage March 12, 1996. Permit contained Part I. pages for "coal" and "oil" handling sites at steam electric generating facilities (other than coal pile runoff), with associated effluent monitoring requirements. The permit also contained a requirement to develop a storm water pollution prevention plan.

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VA# S104

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Description: Outfall VA# S104 is a 30" concrete pipe which is integral to an inactive decant structure that previously served Ash Ponds A, B, and C. The drainage area associated with VA# S104 is approximately 43.8 acres with 50% cleared, 10%, highway, 25% medium woods, and 15% brush. Three drainage areas contribute runoff to this outfall:

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2. Approximately 16.9 acres just northwest of area 1 above, and bounded to the southwest by Possum Point Road, contributes runoff to VA# S104 via pipe #103. This area contains approximately 5% cleared, 5% highway, 35% brush, and 55% medium woods.

3. Approximately 25 acres (43.8 acres total minus 16.9 acres #103 and 2 acres #102) located west of drainage areas 1 and 2 above across Possum Point Road. It is within this drainage area that the old Ash Ponds A, B, and C were located.

Potential Contaminants: None

1996 - VPDES permit reissued with and effective date of August 9, 1996. Permit does not contain specific reference to ponds A, B, C, but does include requirement for development of SWPPP.

2001 - Reissued VPDES Permit reissued effective date September 13. Previous permit had required development of a storm water pollution prevention plan. This permit also contained a condition (G. Storm Water Management) requiring that the SWPPP be updated.

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2013 - Possum Point's VPDES permit is reissued and does not specifically recognize the discharge from Pond C.

DOMINION LABORATORY SERVICES

REPORT PRODUCED ON 04/08/2014

ANALYSIS TEST RESULTS BY SAMPLE

Location: POSSUM POINT

Submitter: KEN ROLLER

Dominion Laboratory Number: 421572
Description : DISCHARGE
Unit: 0

Sample Date: 04/02/2014

Parameter	Result
Ammonia as N, PPM	0.04
Boron as B, PPM	0.08
Chloride as Cl, PPM	45.61
Fluoride as F, PPM	0.069
Sulfate as SO4, PPM	22.93
Silver as Ag, ppb	< 0.1
Dis. Ag, ppb	< 0.1
Arsenic as As, ppb	2.
Dis. As, ppb	< 2.
Barium as Ba, ppb	262.
Dis. Ba, ppb	204.
Beryllium as Be, ppb	< 0.2
Dis. Be, ppb	< 0.2
Cadmium as Cd, ppb	< 0.3
Dis. Cd, ppb	< 0.3
Cobalt as Co, ppb	2.0
Dis. Co, ppb	1.3
Copper as Cu, ppb	5.
Dis. Cu, ppb	4.
Chromium as Cr, ppb	1.
Dis. Cr, ppb	< 1.
Mercury as Hg, ppb	< 0.10
Dis. Hg, ppb	< 0.10
Molybdenum as Mo,ppb	3.
Dis. Mo, ppb	3.
Nickel as Ni, ppb	27.
Dis. Ni, ppb	21.
Lead as Pb, ppb	< 1.
Dis. Pb, ppb	< 1.
Antimony as Sb, ppb	1.
Dis. Sb, ppb	1.
Selenium as Se, ppb	4.
Dis. Se, ppb	4.
Thallium as Tl, ppb	0.4
Dis. Tl, ppb	< 0.3
Titanium as Ti, ppb	< 2.
Dis. Ti, ppb	< 2.
Tin as Sn, ppb	< 5.
Dis. Sn, ppb	< 5.
Magnesium as Mg, PPM	7.32
Dis. Mg, PPM	7.04
Manganese as Mn, PPM	0.04
Dis. Mn, PPM	< 0.02
Iron as Fe, PPM	0.77
Dis. Fe, PPM	0.11
Zinc as Zn, PPM	0.072
Dis. Zn, PPM	0.027
COD, PPM	17.80
TOC, PPM	8.2
TSS, PPM	3.4
Total Phos. as P,PPM	0.05
T-Dis. Solids, PPM	187.0
T-Hard. as CaCO3,PPM	59.85
TK Nitrogen as N,PPM	0.41
NO3+NO2, PPM	1.67
Phenol, PPM	< 0.01

ANALYSIS TEST RESULTS BY SAMPLE

Location: POSSUM POINT

Submitter: KEN ROLLER

Dominion Laboratory Number: 421572
Description : DISCHARGE
Unit: 0

Sample Date: 04/02/2014

Parameter	Result
Aluminum as Al, ppb	253.
Dis. AL, PPB	74.
Vanadium as V, ppb	30.
Dis. V, ppb	25.

DOMINION LABORATORY SERVICES

REPORT PRODUCED ON 04/08/2014

ANALYSIS TEST RESULTS BY SAMPLE

Location: POSSUM POINT

Submitter: KEN ROLLER

Dominion Laboratory Number: 421573
Description : EQUIP BLK
Unit: 0

Sample Date: 04/02/2014

Parameter	Result
Dis. Ag, ppb	< 0.1
Dis. As, ppb	< 2.
Dis. Ba, ppb	< 3.
Dis. Be, ppb	< 0.2
Dis. Cd, ppb	< 0.3
Dis. Co, ppb	< 0.6
Dis. Cu, ppb	< 1.
Dis. Cr, ppb	< 1.
Dis. Hg, ppb	< 0.10
Dis. Mo, ppb	< 1.
Dis. Ni, ppb	< 5.
Dis. Pb, ppb	< 1.
Dis. Sb, ppb	< 1.
Dis. Se, ppb	< 2.
Dis. Tl, ppb	< 0.3
Dis. Ti, ppb	< 2.
Dis. Sn, ppb	< 5.
Dis. Mg, PPM	< 0.01
Dis. Mn, PPM	< 0.02
Dis. Fe, PPM	< 0.05
Dis. Zn, PPM	< 0.010
Dis. AL, PPB	< 1.
Dis. V, ppb	< 1.

Mackert, Susan (DEQ)

From: Schneider, Jutta (DEQ)
Sent: Friday, May 02, 2014 10:09 AM
To: Nicely, Catherine (DEQ); Mackert, Susan (DEQ)
Subject: RE: Dominion VA0002071 Site Characterization Report

Thanks very much!

From: Nicely, Catherine (DEQ)
Sent: Friday, May 02, 2014 9:59 AM
To: Schneider, Jutta (DEQ); Mackert, Susan (DEQ)
Cc: Mackert, Susan (DEQ)
Subject: Dominion VA0002071 Site Characterization Report

Good Morning,

Susan Mackert asked me to let you know that the 2004 Site Characterization Report has been uploaded to ECM under the Dominion permit VA0002071.

Please let me know if you need anything else.
Best regards,
Cathy Nicely
Program Support Technician, Water Permits
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193
Phone: 703-583-3906
Fax: 703-583-3821
catherine.nicely@deq.virginia.gov
www.deq.virginia.gov

Mackert, Susan (DEQ)

From: Nicely, Catherine (DEQ)
Sent: Friday, May 02, 2014 8:40 AM
To: Mackert, Susan (DEQ)
Subject: Dominion GW Site Characterization Report 2004, in ECM

Hi Susan,

This report is now in ECM.

Thanks!
Cathy

Mackert, Susan (DEQ)

From: Schneider, Jutta (DEQ)
Sent: Friday, May 02, 2014 8:38 AM
To: Mackert, Susan (DEQ)
Subject: RE: Possum Point - Site Characterization

Ok, thanks Susan!

From: Mackert, Susan (DEQ)
Sent: Wednesday, April 30, 2014 7:54 PM
To: Schneider, Jutta (DEQ)
Subject: Possum Point - Site Characterization

Hi Jutta,

My apologies for the long delay in getting back to you on this. But during a review of Possum Point files I believe we have found the site characterization report you were inquiring about. Our admin assistant is going to get it scanned on Thursday. Once it's been uploaded to ECM I'll let you know.

Thanks much,
Susan

Mackert, Susan (DEQ)

From: Thomas, Bryant (DEQ)
Sent: Wednesday, April 30, 2014 7:25 PM
To: Faha, Thomas (DEQ); Mackert, Susan (DEQ)
Subject: FW: Coal Ash Impoundment Follow-up
Attachments: Final Memo.docx

FYI. I have not yet reviewed the attachment, but wanted to get it to you before Friday.

-B

From: Schneider, Jutta (DEQ)
Sent: Wednesday, April 30, 2014 1:38 PM
To: Steers, Jeffery (DEQ); Golden, James (DEQ)
Cc: Davenport, Melanie (DEQ); Cunningham, Frederick (DEQ); Thomas, Bryant (DEQ); Sauer, Mark (DEQ); Foster, Kip (DEQ); Kiracofe, Brandon (DEQ); Trent, Mark (DEQ); Adamson, Emilee (DEQ)
Subject: Coal Ash Impoundment Follow-up

Hi everyone,

Attached is a memo with the results of our review of groundwater monitoring at coal ash impoundments. Thanks to everyone for your quick responses to Jeff's initial e-mail and my follow-up questions.

Jeff will follow up with everyone regarding next steps.

Jutta

Jutta Schneider
Program Manager, RCRA CA & Groundwater
Office of Remediation Programs
Ph. (804) 698-4099

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF REMEDIATION PROGRAMS

MEMO

TO: James Golden
Director of Operations

Through: Jeffery A. Steers, Director
Division of Land Protection and Revitalization

FROM: Jutta Schneider, Program Manager
Groundwater and Corrective Action Program

COPIES: Melanie Davenport, Fred Cunningham,
Regional Water Permit Managers

DATE: April 30, 2014

SUBJECT: Review of Groundwater Monitoring Programs at Coal Ash Impoundments

Information was collected and reviewed pertaining to groundwater monitoring at 12 coal ash impoundments at 7 facilities (see Table 1). This memo presents the overall characterization of the facilities, their groundwater monitoring programs, and recommendations.

1. Overall Characterization

* Of the 7 facilities, only 2 are still using the impoundments as part of an active wet management/treatment system (Dominion Chesterfield and Celanese Acetate). Impoundments at 2 additional facilities are no longer receiving coal ash but there are no current plans for closure (Dominion Possum Point and Dominion Bremo). The remaining 3 facilities are in the process of closing their coal ash impoundments over the next 1-2 years (Dominion Chesapeake, AEP-APCO Clinch River and AEP-APCO Glen Lyn).

* All 7 facilities are performing, or have performed in the past, site-specific groundwater monitoring at their coal ash impoundments.

* Groundwater monitoring is managed under VPDES permits at 5 of the 7 facilities. Dominion Chesterfield, Possum Point and Bremo have groundwater monitoring plans on file. AEP Clinch River is reporting toe seepage results for a closed impoundment every five years as part of the VPDES permit renewal process. For the still active impoundment, there is a cutoff slurry wall installed and the facility is collecting groundwater data on a voluntary

basis but the analysis is not part of any permit. Groundwater monitoring at Celanese Narrows was discontinued after a special study found no impacts to surface water from elevated ammonia levels. Groundwater is still being evaluated at Celanese Narrows under the RCRA Corrective Action program.

* Groundwater monitoring is managed under VSWMR permits at 2 of the 7 facilities. The groundwater monitoring systems at Dominion Chesapeake and AEP Glen Lyn consist of combined landfill/impoundment monitoring systems since the impoundments are directly adjacent to coal ash landfills at these facilities. A corrective action program is in place at the Chesapeake facility.

* Monitoring at Dominion Bremo is ongoing to determine the current conditions. Monitoring at the Glen Lyn Bottom Ash Pond under VPDES was discontinued in 1999 when no exceedances of Virginia groundwater standards were observed after decades of operation. At all other coal ash impoundments, impacts to groundwater have occurred as evidenced by exceedances above background and/or increasing trends. Several exceedances of MCLs have occurred, i.e. for arsenic, beryllium, cadmium, and selenium. Exceedances of risk-based ACLs or secondary MCLs were detected for cobalt, iron, manganese, and molybdenum.

* At the 9 impoundments with exceedances above background, the facilities provided additional documentation in accordance with permit conditions or as requested by the DEQ to characterize the impact of these exceedances on human health and the environment (comparison to various applicable criteria and standards, in-stream study, site characterization report, risk assessment, surface water monitoring). No direct impacts to human health or ecological receptors have been reported to date.

* All coal ash impoundments are located directly adjacent to Virginia streams and rivers. In the absence of significant groundwater withdrawals, groundwater would be expected to discharge to these surface water bodies. This is generally confirmed where potentiometric surface maps are available for facilities (excluding Possum Point), and by toe seepage at the closed AEP Clinch River impoundment. Based on the location of the coal ash impoundments, the likely receptors of contaminated groundwater are ecological resources/aquatic life and recreational users of the surface water receiving the groundwater discharge.

*Based on information in VEGIS, there are no public water supply groundwater withdrawals within one mile of any facility with the exception of Celanese Acetate. There are two permitted withdrawals on site at the facility, and three permitted facilities within a 0.75 mile radius around the facility. Based on available information, groundwater flow does not appear to move toward the off-site water supply wells, but this issue is still under investigation under the RCRA Corrective Action program due to impacts from other units at the facility.

2. Groundwater Monitoring Programs at Coal Ash Impoundments under VPDES

*9VAC25-31-547 requires DEQ approval of the VPDES GMP, however, the technical criteria used to review these plans are unclear. Technical reviewers include water permit writers, solid waste groundwater staff, or petroleum remediation groundwater staff, depending on the Regional Office.

* The 1998 guidance memo on VPDES Permit and VPA Permit Ground Water Monitoring Plans (GM 98-2010) recommends 5 sections as minimum requirements for VPDES GMPs: an introduction, hydrogeologic information, monitoring well design and installation, parameter selection and sampling frequency, and sampling protocol. Table 2 compares the three existing GMPs with respect to these 5 requirements.

* The list of monitoring parameters overlaps to a large degree but there are differences. In addition, the monitoring lists do not reflect the full suite of metals that were identified by EPA as present in impoundment leachate or fly ash transport water (see Table 3).

* The three GMPs are consistent in requiring a comparison of groundwater monitoring data with background data using statistical analysis, which is specified in the 1998 Guidance. It is not clear who reviews statistical methods and analyses. Some of the collected data reviewed indicates defined upward analytical trends over a decade or more of sampling.

* There is no clear definition of additional actions that should be taken when an exceedance above background has occurred at a coal ash impoundment. Various approaches specified in permits or utilized at coal ash impoundments to date include 1) comparison to site-specific action levels, 2) comparison to MCLs, 3) comparison to secondary MCLs, 4) comparison to VA Groundwater Quality Standards under 9VAC25-280-40, 5) comparison to VA Groundwater Criteria under 9VAC25-280-70, 6) comparison to risk-based Alternate Concentration Limits, 7) fate and transport modeling and 8) risk assessment (see Table 4). Note that corrective action under the VSWMR are clearly defined and are typically triggered by exceedances above MCLs or ACLs at the unit boundary. Exceedances above background trigger corrective action only if the background value is higher than the applicable MCL or ACL.

* Groundwater standards listed in 9VAC25-280-40 are specified in mg/l. Based on information from VPDES permitting staff, these values are intended to be total recoverable concentrations. Similarly, MCLs and ACLs are based on total concentrations. All three current GMPs list the constituents as dissolved, not total. Using dissolved data may underestimate concentrations of constituents in groundwater and may lead to false negatives. Identification of a statistically significant increase above an applicable standard may not be possible.

* Groundwater standards listed in 9VAC25-280-40 are not entirely consistent with MCLs or ACLs. Using standards or criteria that are not MCLs or risk-based ACLs may lead to either false positives or false negatives in evaluating groundwater suitability as a drinking water source.

* To date, two risk assessments have been performed, one for the old coal ash pond at Dominion Chesterfield and one for the oily waste pond at Dominion Possum Point (which is referenced in the annual groundwater monitoring report for the coal ash ponds in support of continued monitoring in lieu of additional characterization). A technical review of the Dominion Chesterfield risk assessment by risk assessment staff in the Office of Remediation Programs (ORP) identified several questions and potential data gaps, including the lack of a recreational use scenario for human health risk, the lack of sediment and pore water data to assess ecological risk, the selected sampling locations, the values selected for the risk assessment and the use of dissolved concentrations in both surface and groundwater.

3. Recommendations

* Where information is missing from current GMPs, as identified in Table 2, the facilities should be requested to provide the missing information.

* The 1998 Guidance should be reviewed and amended to ensure VPDES groundwater monitoring plans are consistent with the GMPs as required under VSWMR. It may be useful to have one central coordinator to review the various VPDES GMPs, including but not limited to those for coal ash impoundments. At a minimum, a checklist for review should be developed and all plans should be reviewed and possibly revised under this checklist.

* Based on the location of the coal ash impoundments, the most likely risk pathways (ecological resources/aquatic life and recreational users of the surface water) should be evaluated consistently in consultation with the ORP risk assessment staff.

* An evaluation of groundwater as a drinking water resource should be required consistently even if that use is not present or anticipated. Corrective action may not be necessary in the absence of current users but the characterization should be documented for future use. Site-specific action levels based solely on discharge to surface water, as discussed in the 1998 guidance, may not provide the information necessary for this evaluation or the evaluation of risk pathways described above.

* The 1998 Guidance should be reviewed and amended to reflect current state of the art for statistics and risk assessment. Statistical and risk assessment methods and facility evaluations should be reviewed by the ORP statistician and risk assessors.

*While GMPs are required by Regulation (under 9VAC25-31-547), the VPDES related requirements are far less defined in regulatory text than those in the VSWMR. The regulations should be reviewed to identify any needed revisions.

* The 1998 Guidance, associated permit language template and current permit conditions and GMPs only provide general guidance on how to respond to an exceedance of background. It may be helpful to develop a decision tree with specified triggers and associated actions (additional characterization, risk assessment, potential corrective measures such as closure, relining, slurry wall, etc). A flow chart was developed for the Dominion Chesterfield facility that could be tweaked and updated to be applicable for all coal ash impoundments.

Table 1. List of Coal Ash Impoundments in Virginia

Plant Name	VPDES Permit #	Unit Name	Groundwater Monitoring
Dominion-Bremo Power Station	VA0004138	North Ash Pond South Ash Pond	VPDES permit/GMP VPDES permit/GMP
Dominion Chesapeake	VA0004081	Bottom Ash Sedimentation Pond	SWP440
Dominion Chesterfield	VA0004146	Lower (Old) Pond Upper (New) Pond	VPDES permit/GMP VPDES permit/GMP
AEP Clinch River Plant	VA0001015	Ash Pond 1 (1A/1B) Ash Pond 2 - closed	Voluntary VPDES/toe seepage
AEP Glen Lyn	VA0000370	Bottom Ash Pond Fly Ash Pond	VPDES – discontinued SWP222
Dominion Possum Point	VA0002071	Ash Pond D Ash Pond E	VPDES permit/GMP VPDES/GMP
Celanese Acetate	VA0000299	Fly Ash Pond A, B and C	VPDES – discontinued (RCRA CA)

Table 2. Comparison of existing VPDES Groundwater Monitoring Plans (GMPs)

	Chesterfield	Bremo Bluff	Possum Point
Introduction	Y	Y	Y
Hydrogeologic information		Y	Y
Monitoring well design and installation		Y	Y
Parameter selection and sampling frequency		Y	Y
Sampling protocol		Y	Y
Other included sections			
- Phases of Monitoring	Y	Y - general	
- Data Analysis	Y	Y	
- Action Levels	Y		
- Reporting frequency	Y	Y	Y
- Reporting requirements	Y	Y	Y
- Site figures	Y	Y	Y
- Well construction logs		Y	Y
- Well maintenance/abandonment		Y	
- Monitoring list	Y	Y	Y
- Water level measurements		Y	Y
- Water level evaluation		Y	
- Analytical methods		Y	
Permit-specific requirements			
- constituent list			Y
- risk assessment	Y	Y	Not for ash ponds, only for oily waste treatment basin
- Corrective Action Plan	Y	Y – general	"

Table 3. Comparison of Monitoring Lists

EPA List	Chester-field	Bremo Bluff	Possum Point	Clinch River	Cela-nese	Glen Lyn	Chesa-peake
Aluminum						Y	
Antimony				Y		Y	Y
Arsenic	Y	Y	Y	Y	Y	Y	Y
Barium	Y	Y	Y	Y	Y	Y	Y
Beryllium				Y		Y	Y
Boron						Y	
Cadmium	Y	Y	Y	Y	Y	Y	Y
Calcium						Y	
Chromium Hex. Chromium	Y Y	Y Y		Y	Y Y	Y	Y
Cobalt						Y	Y
Copper	Y	Y	Y	Y	Y	Y	Y
Iron	Y	Y	Y			Y	Y
Lead	Y	Y	Y	Y	Y	Y	Y
Magnesium						Y	
Manganese	Y	Y	Y		Y	Y	Y
Mercury	Y	Y	Y	Y	Y	Y	Y
Molyb-denum	Y	Y		Y (P. 2)		Y	
Nickel			Y		Y	Y	Y
Selenium	Y	Y	Y	Y	Y	Y	Y
Silver	Y	Y	Y		Y	Y	Y
Sodium			Y		Y	Y	
Thallium				Y		Y	Y
Tin						Y	
Titanium							
Vanadium	Y	Y	Y	Y (P. 2)		Y	Y
Zinc	Y	Y	Y		Y	Y	Y
					(On initial list)		
Uranium				Y (P. 2)		Y	
Lithium				Y (P. 2)		Y	
Strontium				Y (P. 2)	Y	Y	

Table 4. Comparison of applicable criteria, standards, and corrective action elements

Criteria	Chester-field	Bremo Bluff	Possum Point	Clinch River	Cela-nese	Glen Lyn	Chesa-peake
Background	Y	Y	Y	Y	Y	Y	Y
MCL		Optional	Y	Y	Y	Y	Y
ACL		Optional				Y	Y
RSL							
Action level	Y (New Ash Pond)						
VA GWS			Y		Y		
VA Criteria			Y				
Risk Assessment	Y (Old Ash Pond)	Optional	Y (see note 1)				
Trend	Y		Y				
Flow & Transport							
Corr. Action	Required by permit	Required by permit		Pond 1 slurry wall			adsorption / monit.
Surface water monitoring	Y (Old Ash Pond)			Y	Y		Y
Surface water HH criteria	Y (Old Ash Pond)				N/A Ammonia Only		
Surface water eco criteria	Y (Old Ash Pond)				Y		
Sediment monitoring							
Sediment eco criteria							

Note 1: A risk assessment was performed in accordance with the permit condition pertaining to the oily waste pond. The results in terms of receptors are being applied to the groundwater monitoring program at the ash ponds.

Mackert, Susan (DEQ)

From: Mackert, Susan (DEQ)
Sent: Wednesday, April 23, 2014 11:09 AM
To: Beasley, Trisha (DEQ)
Subject: Possum Point

Hi Trisha,

I included you as a recipient on the memo drafted for the two initial site visits to Possum Point. At this point the memo is still in a draft format. In any case, here's a link to where you can look at it if interested - U:\Possum Point\VA0002071.Site Visit Memo 4-16-14 (updated).pdf

Let me know if you have any questions.

Thanks,
Susan

Mackert, Susan (DEQ)

From: Mackert, Susan (DEQ)
Sent: Monday, April 21, 2014 10:13 AM
To: Doucette, Richard (DEQ); Faha, Thomas (DEQ); Thomas, Bryant (DEQ)
Cc: Demers, Daniel (DEQ)
Subject: Possum Point

All,

Dan took a look at the draft memo for the Possum Point site visits this morning. He had a couple of wording changes which have been incorporated in to the document. Other than that he's good with what we have written. The document can be found at the following - U:\Possum Point\VA0002071.Site Visit Memo 4-16-14 (updated).pdf

Thanks,
Susan

Mackert, Susan (DEQ)

From: Mackert, Susan (DEQ)
Sent: Monday, April 21, 2014 10:12 AM
To: Demers, Daniel (DEQ)
Subject: RE: Possum Point

I did take a look and I think they're fine. Yes, the rain visit was most awesome. But it was good to see it during and after a good rain. I think what struck me most was you could hear the water at the breach.

From: Demers, Daniel (DEQ)
Sent: Monday, April 21, 2014 10:10 AM
To: Mackert, Susan (DEQ)
Subject: RE: Possum Point

☺
Hope you reviewed them ☺
Sounds like you had fun in the rain the second time.

From: Mackert, Susan (DEQ)
Sent: Monday, April 21, 2014 10:09 AM
To: Demers, Daniel (DEQ)
Subject: RE: Possum Point

Hey Dan,

I made your changes so I'll let everyone know that you've looked at it and are ok with it.

Susan

From: Demers, Daniel (DEQ)
Sent: Monday, April 21, 2014 9:42 AM
To: Mackert, Susan (DEQ)
Subject: RE: Possum Point

Looks great. Thanks for pulling everything together.
The only minor edits if you wish to include are saved in same file with RevA in the title.
Once again thanks for the solo effort.

From: Mackert, Susan (DEQ)
Sent: Monday, April 21, 2014 8:41 AM
To: Demers, Daniel (DEQ)
Subject: Possum Point

Hi Dan,

Welcome back!! Hope you had a nice vacation.

I've developed our site memo from our visit to Possum Point a week ago this past Friday. Tom wanted it pretty quick so I ended up shutting my door last Monday to try and crank it out. He asked that you take a look to make sure I represented our visit correctly. I also went back out last Tuesday in a massive down pour to take another look while it

was raining heavily. He had me add that visit on to what we did the Friday before. In any event, you can find a draft of the memo here - U:\Possum Point\VA0002071.Site Visit Memo 4-16-14 (updated).doc

If you see anything that needs to be corrected please let me know.

Thanks,
Susan

Mackert, Susan (DEQ)

From: Mackert, Susan (DEQ)
Sent: Monday, April 21, 2014 8:57 AM
To: Thomas, Bryant (DEQ)
Subject: Possum Point

Bryant,

Here is a link to the memo if you're interested.....U:\Possum Point\VA0002071.Site Visit Memo 4-16-14 (updated).pdf

Thanks,
Susan

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court Woodbridge, VA 22193

SUBJECT: Dominion – Possum Point Power Station VA0002071

TO: Tom Faha

FROM: Dan Demers and Susan Mackert

DATE: April 15, 2014

UPDATED: April 16, 2014

COPIES: Trisha Beasley, Rich Doucette, Bryant Thomas

BACKGROUND

Staff received a call from Dominion on Wednesday, April 9, 2014, concerning the presence of three previously unaccounted for ash ponds (A, B, and C) located at the Possum Point Power Station. The ash pond complex is located on a parcel of land between Possum Point Road and Quantico Creek (Attachment 1). The ash pond complex was constructed in approximately 1955 and was last used in 1972. Ash was deposited in all three ponds starting with "A", moving to "B", and then to "C" as the ponds filled.

Dominion noted that a discharge structure and discharge pipe remain in place at Ash Pond C which has a direct discharge to Quantico Creek. A sample was collected from the discharge. According to Dominion, sample results indicate the presence of some trace metals typically associated with ash pond operations.

Dominion also noted a breach of the berm associated with Ash Pond A. Dominion believes storm water has collected along the berm causing the storm water to overtop the berm. An area approximately five feet wide by six feet deep has been eroded. It is Dominion's belief that this has been occurring for some time.

After speaking with Dominion, staff briefed Northern Regional Office (NRO) management on April 9, 2014. NRO staff was directed to conduct a site visit to the Possum Point Power Station by week's end.

SUMMARY OF FIELD OBSERVATIONS

April 11, 2014

On April 11, 2014, Dan Demers and Susan Mackert conducted a site visit to observe the ash pond complex and gather additional information from Dominion. Dominion staff present included Ken Roller and Jeff Marcell. Photographs taken during this site visit are provided in Attachment 2. The following are noted:

- The facility ceased the use of coal in March 2003.
- The quantity of ash deposited in to the ash pond complex is unknown. Staff requested that, if the information is available, Dominion review the amount of coal burned during the usage period of the ash ponds to determine an estimate of ash quantity.
- The acreage of each ash pond is unknown. An aerial survey was conducted within the last two weeks and Dominion anticipates acreage information will be available soon. Additionally, the survey will be used to determine the extent of the complex so that a proposed channel can be constructed to redirect all surface water flow to Ash Pond C; thereby stopping the apparent over topping of the berm and subsequent erosion at the area of the breach.

- Dam safety staff from the Department of Conservation and Recreation (DCR) has been contacted. Dominion is awaiting guidance from DCR staff concerning core sampling. As of the date of the site visit, a schedule for core sampling was not in place.

- Staff from the U.S. Army Corps of Engineers has been contacted concerning a wetlands determination.

- Ash Ponds A, B, and C are overgrown with vegetation (photos 1 – 9). There is no evidence that the ash ponds are lined (synthetic or natural) or capped.

- A discharge weir structure does remain in place at Ash Pond C (photos 10 – 11). The structure at Ash Pond C is draining and/or seeping through a gap in the wall at approximately thirty-five inches below the top as measured by Dominion staff. Flow is estimated at approximately two gallons per minute (photo 12). The discharge is directly to Quantico Creek (photos 13 – 14) and is tidally influenced.

- Two groundwater monitoring wells are located just off the access road in to the ash pond complex in closest proximity to Ash Pond C (photo 15).

- The berm wall for Ash Ponds A, B, and C is one continuous wall (photo 16). There is a downward slope towards Quantico Creek (photo 17). The toe of the path that serves as the berm appears to have seepage along all three ash ponds.

- There is an intermittent overflow point from Ash Pond B (photos 18 – 19). Heavy rains cause this area to overtop the berm wall and drain down the berm slope towards Quantico Creek (photo 20). Standing water in this area appeared dark in color.

- The breach area identified at Ash Pond A (photo 21) appeared to have some vegetation and did not appear to be new. Staff estimates this area to be possibly six to nine months old. Dominion noted a constant flow since the breach was first discovered in March 2014. The flow appeared to be a combination of surface drainage (photos 22 - 24) and seepage through the berm. There did not appear to be erosion at the low flow observed. However, during rain events it does appear that there is potential for severe erosion from water running over the berm. The discharge would flow across a heavily vegetated area prior to any discharge to Quantico Creek (photo 25). Samples have not been collected from this point.

- Ash Pond A has an additional area of flow along the southeastern edge adjacent to the closed sewage treatment lagoons (photos 26 - 28) that may have seepage through the berm.

- The facility's existing ash ponds, D and E, were also observed. No issues were noted.

- Ash Pond D is a lined structure with a surface area of 72 acres and a maximum depth of 120 feet. The pond was placed in to service in 1989 and serves as the permanent repository for sediment and ash generated at the Possum Point Power Station.

- Ash Pond E is an unlined structure with a surface area of approximately 40 acres.

April 15, 2014

On April 15, 2014, Susan Mackert conducted a site visit to observe the ash pond complex due to the heavy rains forecasted for the area. Dominion staff present included Jeff Marcell. Photographs taken during this site visit are provided in Attachment 3. The following are noted:

- Weather data for the Possum Point Power Station is obtained from the National Oceanic and Atmospheric Administration (NOAA) station at the Quantico Marine Corps Air Facility. Rainfall data for April 15, 2014, is provided in Attachment 4.

- Rain began falling at approximately 6:00 am on April 15, 2014. Rainfall was heavy at times with approximately one inch being recorded prior to the site visit.

- A visual observation of the breach area identified at Ash Pond A was made. The area appeared to be visually consistent with observations noted during the April 11, 2014, site visit. No water was noted as running over the berm (photo 1). Water collecting at the edge of Ash Pond A was noted as flowing (photo 2).

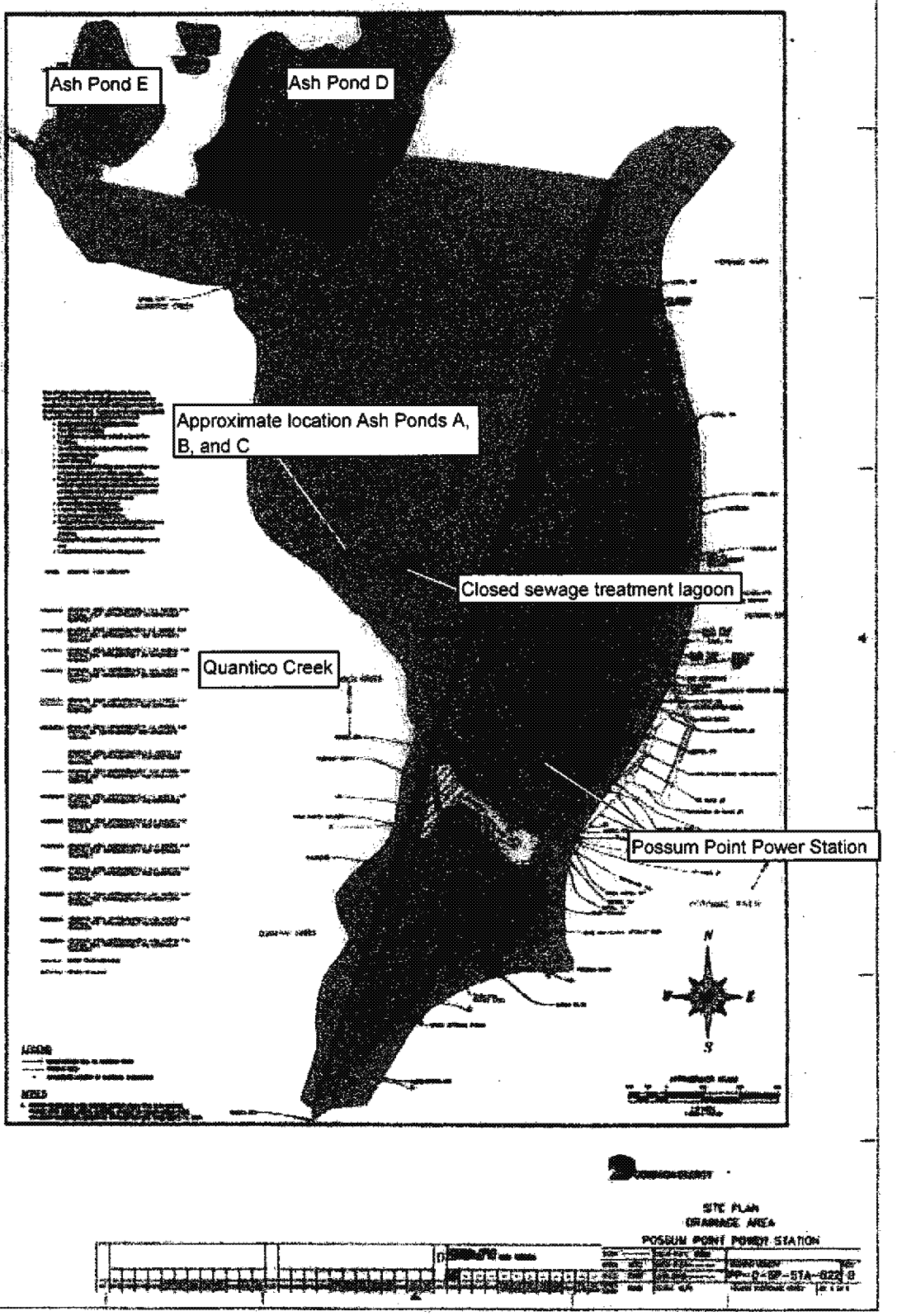
- Flow from the breach area was observed (photos 3 – 4). The flow was distinctly audible, which was not the case during the previous site visit on April 11, 2014.

- A visual observation of the suspected overflow point at Ash Pond B was made. The area appeared to be visually consistent with observations noted during the April 11, 2014, site visit. Water was observed collecting at the edge of Ash Pond B (photo 5). No water was observed running over the berm (photos 6 – 7).

- Clarification was provided by Dominion concerning the two groundwater monitoring wells located just off the access road in to the ash pond complex. The wells are included in a groundwater monitoring plan required by the facility's Virginia Pollutant Discharge Elimination System (VPDES) permit number VA0002071. The wells do not capture water from the ash pond complex.

- Dominion stated DCR staff will be on site Thursday, April 24, 2014.

Attachment 1 - Maps


Ash Pond E
Ash Pond D
Approximate location Ash Ponds A, B, and C
Closed sewage treatment lagoon
Quantico Creek
Possum Point Power Station
N
E
S
SITE PLAN
DRAINAGE AREA
POSSUM POINT POWER STATION

COCKPIT PT. ROAD
Possum Point Rd
POND A
POND C

Attachment 2: Photographs from April 11, 2014 Field Observations

Photo 1. Ash Pond C.

Photo 2. Ash Pond C.

Photo 3. Ash Pond C.

Photo 4. Ash Pond C.

Photo 5. Transition point from Ash Pond C to Ash Pond B.

Photo 6. Transition point from Ash Pond C to Ash Pond B.

Photo 7. Transition point from Ash Pond B to Ash Pond A.

Photo 8. Ash Pond A.

Photo 9. Ash Pond A.

Photo 10. Discharge structure at Ash Pond C.

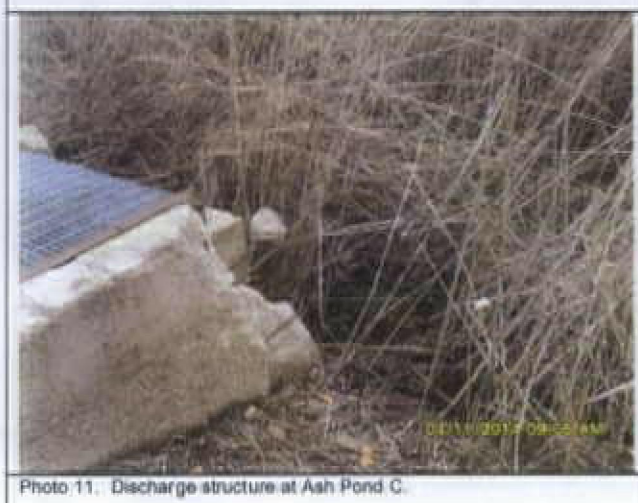


Photo 11. Discharge structure at Ash Pond C.

Photo 12. Flow into discharge structure at Ash Pond C.

Photo 13. Discharge pipe associated with Ash Pond C. Flow is in the direction of the arrow.

Photo 14. Discharge path from pipe in photo 13 to Quantico Creek. Flow is in the direction of the arrow.

Photo 15. Groundwater monitoring wells located in proximity to Ash Pond C.

Photo 16. Berm wall.

Photo 17. Down slope of berm wall. Quantico Creek is in the direction of the arrow.

Photo 18. Overflow point from Ash Pond B.

Photo 19. Overflow point from Ash Pond B.

Photo 20. Overflow point from Ash Pond B reaching downward slope towards Quantico Creek.

Photo 21. The arrow points to the location of the breach associated with Ash Pond A.

Photo 22. Surface drainage to breach.

Photo 23. Surface drainage to breach.

Photo 24. Surface drainage to breach.

Photo 25. Flow from breach area would travel in the direction of the arrow towards Quantico Creek.

Photo 26. Southeastern edge of Ash Pond A adjacent to closed sewage treatment lagoons.

Photo 27. Flow noted in area shown in photo 28.

Photo 28. Flow noted in area shown in photo 26.

Attachment 3: Photographs from April 15, 2014 Field Observations

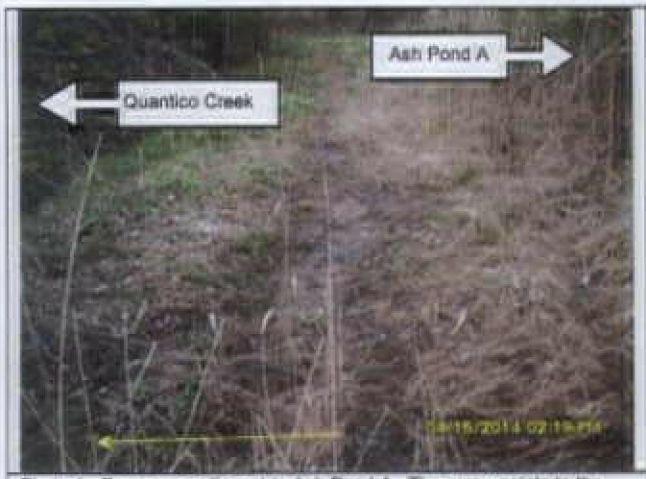


Photo 1. Berm area adjacent to Ash Pond A. The arrow points to the area of the breach. Note standing water on berm.

Photo 2. Water collected at the edge of Ash Pond A. Water was flowing in the direction of the arrow.

Photo 3. Breach area of Ash Pond A. Flow from the breach is in the direction of the arrow.

Photo 4. Close up of breach area of Ash Pond A.

Photo 5. Standing water adjacent to Ash Pond B.

Photo 6. Berm area adjacent to Ash Pond B. Note no water flowing over the berm.

Photo 7. Overflow point from Ash Pond B.

Attachment 4: Rain Data from April 15, 2014

Weather observations for the past three days

Quantico Marine Corps Air Facility

Enter Your "City, ST" or zip code [Go] metric en español

Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Temperature (°F) Air	Dwpt	6 hour Max.	6 hour Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	Pressure altimeter (in)	Pressure sea level (mb)	Precipitation (in.) 1 hr	3 hr	6 hr
16	10:56	N 21 G 26	10.00	Fair and Breezy	CLR	41	14			33%	32	NA	30.46	1031.6			
16	09:56	N 21 G 26	10.00	Fair and Breezy	CLR	39	13			34%	29	NA	30.44	1030.8			
16	08:56	N 15 G 28	10.00	Fair	CLR	37	15			41%	28	NA	30.42	1030.0			
16	07:56	N 13 G 22	10.00	Fair	CLR	35	17	36	33	48%	26	NA	30.37	1028.5			
16	06:56	N 14 G 23	10.00	Fair	CLR	33	16			49%	23	NA	30.33	1027.3			
16	05:56	N 12 G 22	10.00	Fair	CLR	34	17			50%	25	NA	30.29	1025.6			
16	04:56	N 14 G 22	10.00	Fair	CLR	34	17			50%	25	NA	30.24	1024.1			
16	03:56	N 15 G 31	10.00	Fair	CLR	35	15			44%	25	NA	30.20	1022.6			
16	02:56	N 18 G 30	10.00	Fair	CLR	35	17			48%	24	NA	30.17	1021.6			
16	01:56	N 15 G 24	10.00	Fair	CLR	36	19	41	36	50%	27	NA	30.13	1020.4			0.04
16	00:56	N 24 G 38	10.00	A Few Clouds and Breezy	FEW048	37	21			52%	26	NA	30.11	1019.6			
15	23:56	N 13 G 25	10.00	Mostly Cloudy	BKN044	39	24			55%	31	NA	30.08	1018.6			
15	22:56	N 13	10.00	Overcast	OVC040	40	30			68%	32	NA	30.06	1018.1		0.04	
15	21:56	NE 9	10.00	Overcast	SCT010 BKN030 OVC050	39	34			82%	33	NA	30.00	1015.8	0.02		
15	20:56	N 15 G 22	6.00	Light Rain Fog/Mist	FEW015 BKN030 OVC060	39	35			86%	31	NA	29.95	1014.3	0.02		
15	19:56	N 17 G 26	5.00	Light Rain	SCT015 BKN030 OVC060	41	36	73	41	82%	33	NA	29.90	1012.5	0.09		0.36
15	18:56	N 14 G 30	7.00	Light Rain	SCT020 OVC050	43	37			80%	36	NA	29.86	1011.1	0.03		
15	17:56	N 21 G 35	6.00	Light Rain and Breezy	BKN020 OVC035	45	40			83%	37	NA	29.79	1008.8	0.08		
15	16:56	N 21	3.00	Light	FEW016	47	41			80%	39	NA	29.74	1007.3	0.08	0.16	

April

		G 30		Rain and Breezy	BKN021 OVC039												
15	15:56	N 21 G 31	4.00	Light Rain and Breezy	FEW010 OVC030	50	45			83%	43	NA	29.70	1005.7	0.08		
15	14:56	N 14 G 25	10.00	Light Rain	FEW014 OVC029	53	48			83%	NA	NA	29.65	1004.3			
15	13:56	SW 17 G 25	10.00	Overcast	BKN030 OVC100	72	59	72	63	64%	NA	NA	29.57	1001.5		0.98	
15	12:56	SW 15	10.00	Overcast	SCT031 BKN041 OVC095	68	63			84%	NA	NA	29.58	1001.7			
15	11:56	S 13	10.00	Overcast	BKN018 OVC026	67	64			91%	NA	NA	29.59	1001.9			
15	10:56	S 12	10.00	Overcast	BKN028 BKN060 OVC110	64	62			93%	NA	NA	29.57	1001.5	0.98		
15	09:56	SW 6	10.00	Light Rain	SCT028 BKN060 OVC110	64	62			93%	NA	NA	29.62	1003.1	0.31		
15	08:56	SW 10 G 21	0.75	Heavy Rain Fog/Mist	BKN017 BKN027 OVC043	65	62			90%	NA	NA	29.63	1003.6	0.67		
15	07:56	S 16	6.00	Light Rain Fog/Mist	SCT020 BKN026 OVC045	64	60	66	64	87%	NA	NA	29.64	1003.8	0.04	0.05	
15	06:56	S 18	10.00	Light Rain	BKN025 OVC031	65	60			84%	NA	NA	29.65	1004.3	0.01		
15	05:56	S 14	10.00	Light Rain	BKN028 BKN032 OVC044	65	60			84%	NA	NA	29.68	1005.0			
15	04:56	S 12	10.00	Overcast	OVC027	64	59			84%	NA	NA	29.70	1005.9			
15	03:56	S 13	10.00	Overcast	OVC026	66	59			78%	NA	NA	29.73	1006.8			
15	02:56	S 12	10.00	Mostly Cloudy	BKN031 BKN110	64	59			84%	NA	NA	29.75	1007.6			
15	01:56	S 12	10.00	Partly Cloudy	FEW042 SCT049 SCT060	65	59	70	64	81%	NA	NA	29.78	1008.6		0.01	
15	00:56	SW 15	10.00	Overcast	OVC046	68	59			73%	NA	NA	29.81	1009.5			
14	23:56	SW 16	10.00	Light Rain	FEW036 BKN047 OVC055	69	59			70%	NA	NA	29.82	1009.9	0.01		
14	22:56	S 12	10.00	Overcast	OVC075	67	57			71%	NA	NA	29.84	1010.4			
14	21:56	SW 6	10.00	Mostly Cloudy	BKN090	67	55			66%	NA	NA	29.84	1010.6			
14	20:56	SW 6	10.00	Fair	CLR	66	56			70%	NA	NA	29.85	1010.8			
14	19:56	SW 8	10.00	Fair	CLR	67	56	78	65	68%	NA	NA	29.84	1010.5			
14	18:56	S 12	10.00	Fair	CLR	67	56			68%	NA	NA	29.85	1010.8			
14	17:56	SW 14 G 23	10.00	Overcast	FEW020 BKN060 OVC180	75	51			43%	NA	NA	29.87	1011.6			
14	16:56	SW 9	10.00	Overcast	FEW060	77	51			40%	NA	78	29.88	1012.1			

April

		G 20			OVC180									
14	15:56	SW 13 G 29	10.00	Overcast	SCT060 OVC200	75	53			46%	NA	NA	29.90	1012.6
14	14:56	SW 10 G 24	10.00	Mostly Cloudy	SCT070 BKN150	77	52			42%	NA	78	29.92	1013.1
14	13:56	SW 23 G 32	10.00	Mostly Cloudy and Breezy	SCT050 BKN080	75	53	76	65	46%	NA	NA	29.94	1013.8
14	12:56	SW 23 G 32	10.00	Mostly Cloudy and Breezy	SCT050 BKN060 BKN150	74	54			50%	NA	NA	29.96	1014.6
14	11:56	SW 16 G 30	10.00	Mostly Cloudy	BKN039 BKN049 BKN150	72	55			55%	NA	NA	29.99	1015.7
14	10:56	SW 16 G 26	10.00	Overcast	BKN034 BKN043 OVC050	71	56			59%	NA	NA	30.00	1015.9
14	09:56	SW 18 G 28	10.00	Overcast	OVC031	68	57			68%	NA	NA	30.00	1016.1
14	08:56	SW 18 G 24	10.00	Mostly Cloudy	BKN025 BKN150	67	57			71%	NA	NA	30.00	1015.8
14	07:56	SW 16	10.00	Mostly Cloudy	SCT120 BKN250	65	56	68	63	73%	NA	NA	30.00	1016.0
14	06:56	SW 15	10.00	Fair	CLR	64	55			73%	NA	NA	30.00	1015.9
14	05:56	SW 13	10.00	Fair	CLR	65	55			70%	NA	NA	29.99	1015.6
14	04:56	SW 15	10.00	Fair	CLR	66	54			65%	NA	NA	30.00	1016.0
14	03:56	SW 16	10.00	Fair	CLR	66	54			65%	NA	NA	30.00	1016.0
14	02:56	S 15	10.00	Fair	CLR	66	55			68%	NA	NA	30.01	1016.1
14	01:56	S 13	10.00	Fair	CLR	66	56	72	64	70%	NA	NA	30.02	1016.5
14	00:56	S 16	10.00	Fair	CLR	64	56			75%	NA	NA	30.03	1016.8
13	23:56	S 12	10.00	Fair	CLR	64	56			75%	NA	NA	30.02	1016.7
13	22:56	SW 9	10.00	Fair	CLR	66	56			70%	NA	NA	30.02	1016.6
13	21:56	SW 12	10.00	Fair	CLR	67	56			68%	NA	NA	30.03	1016.8
13	20:56	S 12	10.00	Fair	CLR	66	56			70%	NA	NA	30.01	1016.4
13	19:56	SW 13	10.00	Fair	CLR	72	56	82	71	57%	NA	NA	30.01	1016.3
13	18:56	SW 20	10.00	Fair	CLR	75	54			48%	NA	NA	30.00	1016.1
13	17:56	S 17	10.00	Fair	CLR	71	55			57%	NA	NA	30.01	1016.2
13	16:56	S 17	10.00	Fair	CLR	75	55			50%	NA	NA	30.00	1016.1
13	15:56	S 18	10.00	Fair	CLR	74	55			52%	NA	NA	30.01	1016.4
13	14:56	S 20	10.00	Fair	CLR	74	55			52%	NA	NA	30.03	1017.0

13	13:56	SW 16 G 26	10.00	Fair	CLR	81	51	81	56	35%	NA	80	30.06	1018.1				
13	12:56	S 10	10.00	Fair	CLR	70	56			61%	NA	NA	30.09	1018.9				
13	11:56	S 16	10.00	Fair	CLR	68	56			65%	NA	NA	30.12	1020.0				
Date	Time (edt)	Wind (mph)	Vis. (mi.)	Weather	Sky Cond.	Air	Dwpt	Max.	Min.	Relative Humidity	Wind Chill (°F)	Heat Index (°F)	altimeter (in.)	sea level (mb)	1 hr	3 hr	6 hr	
						Temperature (°F)		6 hour					Pressure		Precipitation (in.)			

National Weather Service
Southern Region Headquarters
Fort Worth, Texas
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Mackert, Susan (DEQ)

From: Faha, Thomas (DEQ)
Sent: Wednesday, April 16, 2014 10:07 AM
To: Steers, Jeffery (DEQ); Golden, James (DEQ)
Cc: Mackert, Susan (DEQ); Thomas, Bryant (DEQ); Doucette, Richard (DEQ)
Subject: RE: Possum Pt

Thanks.....forgot about that. And PRO good alternative.

From: Steers, Jeffery (DEQ)
Sent: Wednesday, April 16, 2014 10:03 AM
To: Faha, Thomas (DEQ); Golden, James (DEQ)
Cc: Mackert, Susan (DEQ); Thomas, Bryant (DEQ); Doucette, Richard (DEQ)
Subject: RE: Possum Pt

Central office will be closed on May 2nd due to the big bike race and street closings, fyi..could meet out at PRO I suppose

---

From: Faha, Thomas (DEQ)
Sent: Wednesday, April 16, 2014 10:02 AM
To: Golden, James (DEQ); Steers, Jeffery (DEQ)
Cc: Mackert, Susan (DEQ); Thomas, Bryant (DEQ); Doucette, Richard (DEQ)
Subject: Possum Pt

I spoke with Ken Roller; Cathy Taylor is out this week.

I asked for the meeting as we discussed yesterday (for Dominion to give background and preliminary thoughts on plan forward).

I told him we'd meet in CO and suggested the following dates/times:

Monday	April 28	9am
Tuesday	April 29	9am
Friday	May 2	9 or 10 am

He said he'd get back to me asap.

t

Thomas A. Faha
Director, Northern Regional Office
Virginia Dept of Environmental Quality
13901 Crown Ct
Woodbridge, VA 22193
703/583-3810

4-15 Site Notes

DEQ - Me
Dominion - Jeff

- flarified wells are in permit for D&E (no connection to A, B, C)
- DCR expected 4-24

Photos

3052 1. Breach area (no H2O over berm)
3053 2. H2O collecting at edge of pond A (was flow)
3052 Note sound of H2O 3053 3. 4.) Breach
3054 5.) Overflow pt at Pond B - no H2O over berm
3055 6.
3056 7. Pond B overflow pt. at base of berm

Mackert, Susan (DEQ)

From: Faha, Thomas (DEQ)
Sent: Friday, April 11, 2014 3:49 PM
To: Doucette, Richard (DEQ); Thomas, Bryant (DEQ); Mackert, Susan (DEQ); Demers, Daniel (DEQ)
Subject: FW: (UNCLASSIFIED)
Attachments: Ponds ABC Ditch Aerial.pdf

-----Original Message-----
From: Quigley, Margaret (DEQ)
Sent: Friday, April 11, 2014 10:50 AM
To: Faha, Thomas (DEQ); Beasley, Trisha (DEQ)
Subject: FW: (UNCLASSIFIED)

FYI. For next week's discussion

Margaret E. Quigley
VWP Permit Writer

-----Original Message-----
From: Crockett-Augustine, Theresita M NAO [mailto:Theresita.M.Crockett-Augustine@usace.army.mil]
Sent: Friday, April 11, 2014 10:32 AM
To: Quigley, Margaret (DEQ)
Subject: FW: (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Oula K Shehab-Dandan (Services - 6) [mailto:oula.k.shehab-dandan@dom.com]
Sent: Friday, April 11, 2014 10:08 AM
To: Crockett-Augustine, Theresita M NAO
Subject: [EXTERNAL] RE: (UNCLASSIFIED)

-----Original Message-----
From: Crockett-Augustine, Theresita M NAO [mailto:Theresita.M.Crockett-Augustine@usace.army.mil]
Sent: Friday, April 11, 2014 10:08 AM
To: Oula K Shehab-Dandan (Services - 6)
Subject: (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Theresita Crockett-Augustine
Environmental Scientist
Norfolk District Corps of Engineers
Northern Virginia Field Office
703-221-9736

The Norfolk District is committed to providing the highest level of support to the public. In order for us to better serve you, we would appreciate you completing our Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete the survey.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE


ACCESS ROAD
COCKPIT PT. ROAD
CONCRETE RISER AND
30" CONC. OUTLET PIPE
POND C
Possum Point Rd
DRAINAGE DITCH
POND B
FLOW OVER EMBANKMENT
EMBANKMENT
POND A
CLOSED WASTE WATER PONDS

April 11

Site Notes

DEQ - Me, Dan
Dominion - Jeff, Ken

Ask for Corp to coordinate w/ VWP

All 3 ponds built at ≈ same time (1955)
- one common dike wall for all 3
- all 3 have ash
- look in to amt. ash in each pond (Dan requested)
- stopped use ('66-72?

Photos

3004 1. Wells near Charlie pond. (Are included in VPDES permit)
3005 2. Discharge structure for Charlie pond
3006 3. Surface H2O @ Charlie Pond (tends to discharge all the time)
3007 4. } Charlie Pond
3008 5.
5009 6. Discharge pt. for Charlie pond (is tidally influenced - sample collection was'nt during high tide
3010 7. Broken discharge pipe @ point where Charlie pond discharge enters Quantico Creek
5011 8. Discharge path to Quantico Creek
3012 9. Discharge structure @ Charlie pond } ≈ 2 gallons per minute seeping thru stop logs
3013 10.
3014 11. ↓
3015 12. Dike wall for A, B, C (one continuous wall)
3016 13.
3017 14. } Charlie pond

15. Downslope of dike wall towards Quantico Creek

16. 17. > Charlie pond

18. 19. > Transition point to Bravo pond

20. 21. > intermittent overflow point for Bravo pond

22. Believed overflow point from Bravo pond

23. Transition point to Alpha pond

24. Alpha pond

25. 26. 27. > H_2O collecting in Alpha pond near breach

28. Breech area

- has been flowing since discovered (air survey done)
- what is being held in pond A
- has it been sampled
- good distance to Quantico Creek
- find extent of complex & redirect surface H_2O to pond C
- determine acreage

coredrilling planned in accordance w/ DCE

no evidence have been capped

29. Path from breach to Quantico Creek

30. Rounding bend to other side of complex

31. 32. 33. > Alpha pond surface H_2O (discharge pt?)

34. old sluice pipes / H_2O pipe
↳ black

3038 35 other side of complex

3039 36 Bravo pond in front, charlie pond behind grove of trees
(looking towards direction of Quantico Creek)

3040 37

3041 38) Woodpeckers

3042 39)

3043 40

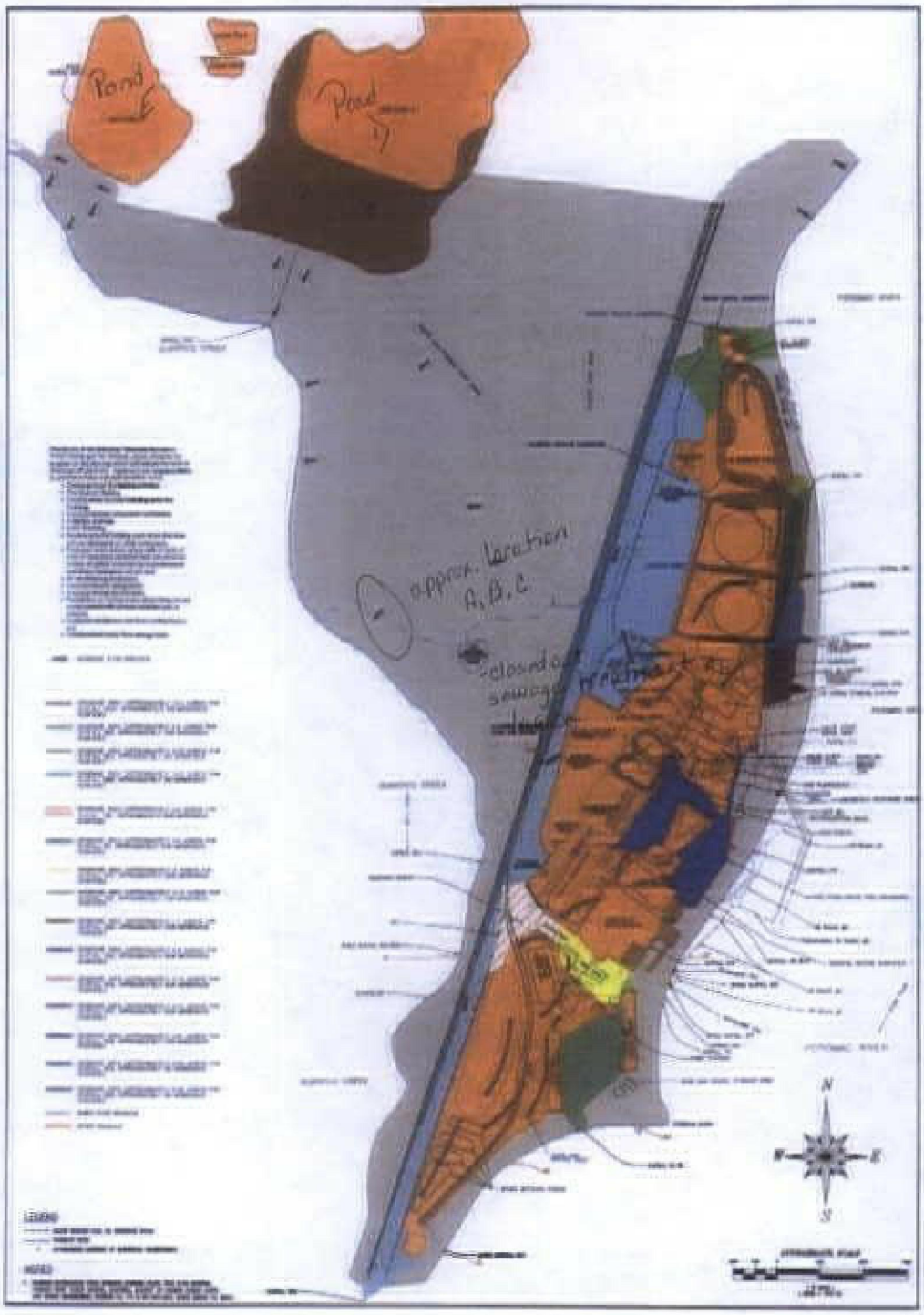
3044 41 Eagle

3045 42

3046 43) Ask Paul

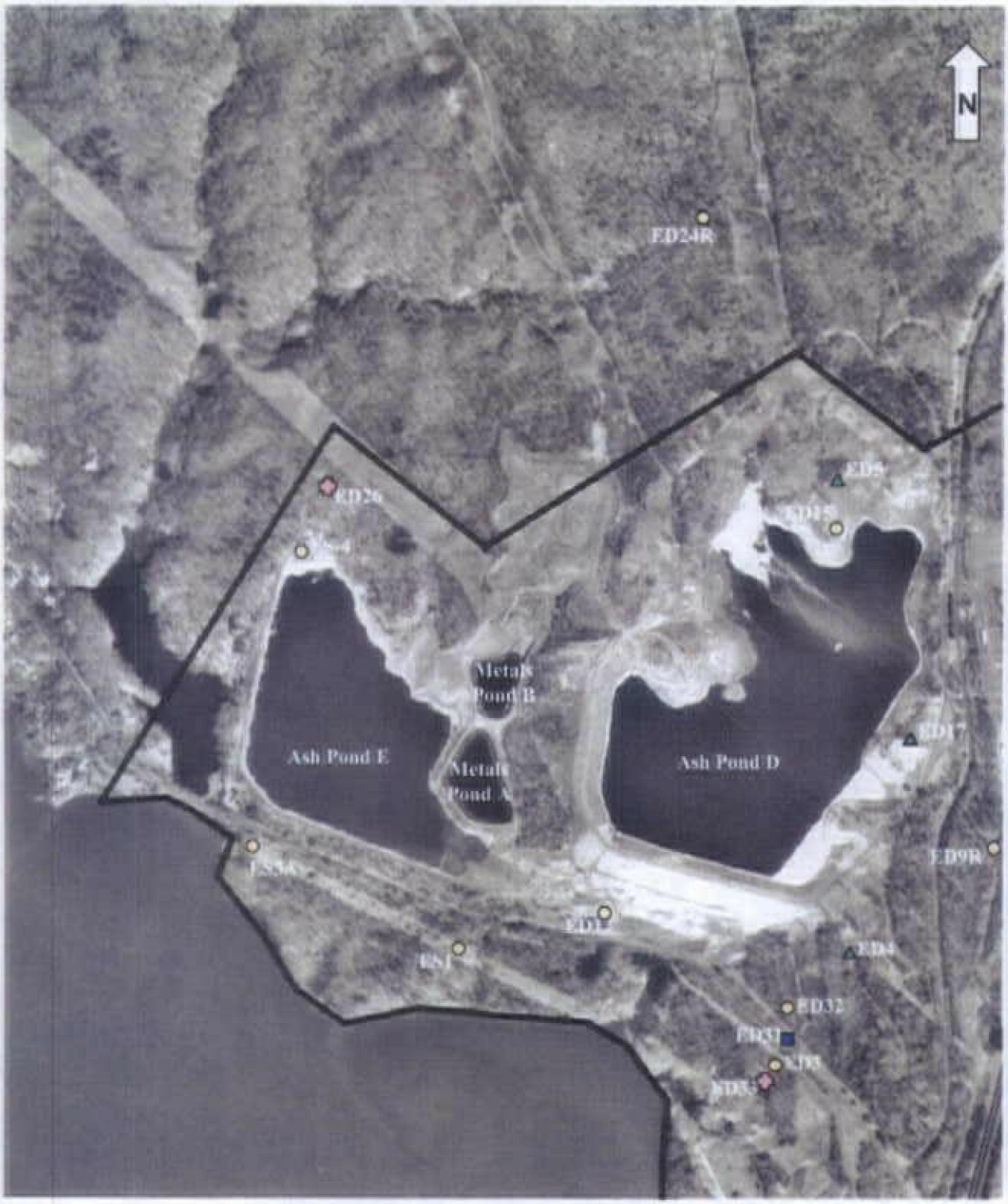
3047 44)

3048 45



SITE PLAN
DRAINAGE AREA
POSSUM POINT POWER STATION

00013464



Legend	Groundwater Monitoring Well Locations Ash Ponds D&E				Figure 2
▲ Stratum B Well ○ Stratum D Well ■ Stratum E Well ⊗ Stratum F Well	Date: November 2007		URS Project No.: 11656611		Possum Point Power Station Dumfries, VA
	Drawn by: KAH	Checked by: RAW	Reviewed by: RAW	Approved by: JOS	URS CORPORATION 5540 FALMOUTH ST., SUITE 201 RICHMOND, VA 23230
			File name: Figure 2 D&E Well Locations		


ACCESS ROAD
COCKPIT PT. ROAD
CONCRETE RISER AND
30" CONC. OUTLET PIPE
POND C
POND B
Possum Point Rd
FLOW OVER EMBANKMENT
EMBANKMENT
POND A
CLOSED WASTE WATER PONDS

April 11, 2014

Mr. Richard Doucette
DEQ NRO

Re: Site Visit Possum Point

During a visit with Susan Mackert to investigate the areas identified by Dominion Power as Ash Ponds "a", "b", and "c" the following observations were made and information was provided to us;

- Ash was deposited into "a" then "b" then "c" as the ponds filled it is believed all 3 ponds were constructed at the same time and were operated as a network.
- 1972 was the last time the ponds were used.
- Site waiting for DCR to recommend location of bore samples.
- Drain structure at pond "c" is currently draining through a gap in the wall structure at 35" below top as measured by Dominion staff.
- Two wells observed just off the access road that appeared to be working sample points.
- Site is seeking to divert water flow via a channel (ditch) from pond "a" to pond "b" to stop the apparent over flowing of the berm and further erosion at the breach.
- No know liners at this time. Synthetic or natural.
- No know quantities of ash deposited. Requested Dominion look at Coal burned during the pond usage period to determine (estimate) ash quantity.
- No sampling records to date other than the one taken at the overflow structures discharge pipe sampled recently.
- Aerial survey conducted within last two weeks.
- No schedule for any environmental sampling or core sampling at this time.
- The toe of the path that is the berm appears to have seepage along all three ponds.
- Pond "a" has a flow of water along the edge by the closed Waste Water Ponds that may have seepage through the berm
- The area identified as the breach appeared to have some vegetation and did not appear to be newer than 6-9 months (guesstimate). Did have a steady flow which appeared to be a combination of surface draining and seep through the berm which did not appear to be eroding the berm at the low flow observed. However, during rain events it did appear there is the potential for severe erosion from water running over the berm.

Daniel J. C. Demers
Regional Waste Technical Coordinator

cc: File

411005 ~ 008 & 016, 017, 018, 019,

009, 010

011, 012, 013, 014, 015

411001, 002, 003, 004

U:\Poss Point\

Pics 4-11-2014

411021
411022, 411023

411025
027
028

029

030

031

035

038

050

040

041, 042

041, 043

043, 044

046

Mackert, Susan (DEQ)

From: Faha, Thomas (DEQ)
Sent: Friday, April 11, 2014 8:34 AM
To: Beasley, Trisha (DEQ)
Cc: Thomas, Bryant (DEQ); Doucette, Richard (DEQ); Mackert, Susan (DEQ); Demers, Daniel (DEQ)
Subject: Possum Point Old Coal Ash Ponds

Trish,

FYI and Heads up.

Dominion notified us this week that they have three very old and closed coal ash ponds at Possum Point adjacent to Quantico Creek. Dominion stopped using the ponds in 1965 and when they were in use, they ran in series; i.e. water from pond A flowed to B and then to C, and then discharged to Quantico Creek.. The ponds were not "closed" in any regulatory form. Based on recent aerial photos, the ponds have matured into grass-shrubs. The pipe at the end of pond C is present and draining underground water. Susan and Dan are meeting with Dominion today to visit the site and gather as much information on the ponds as possible.

Where you come in - Dominion has contacted USCOE. In the coming days I would like one of the VWP staff to visit and assess the wetlands in and around the ponds, perhaps with the Corp depending on what stance they take regarding the site.

Call if you have questions or if you have any immediate suggestions.

Thanks.....t

Thomas A. Faha
Director, Northern Regional Office
Virginia Dept of Environmental Quality
13901 Crown Ct
Woodbridge, VA 22193
703/583-3810

Ken @ 10.08/am
4-9

Back in February Duke Energy
- started dom. looking
- Possum Point ponds A, B & C

Ponds A, B, C as move from south to north
- constructed in 1955 - ash placed until mid 60s
- form one big pond
- Pond C discharge structure is still there. Stop logs still in place
- Google earth - hard packed, overgrown w/ vegetation
  - wouldn't know there's a pond
- westward edge of pond there's a dike, ash + natural cover
- looked at westward edge
  - dike associated w/ A pond. storm H2O has been accumulating along dike, overtopped & eroded - 5' wide / 6' deep. Been happening awhile, want to do repairs
  - redirect storm H2O to where normally have gone Pond C
- sample from Pond C (pipe to Quantico Creek)
  - hardness - 59.85 mg/l
  - Ni - 2 ug/l (dis 2 ug/l)
  - Se - 4 ug/l
  - Vanadium - 30 ug/l
  - } trace metals associated w/ ash pond discharges
  - TSS - 3.4 mg/l
  - pH - 8.8
- DCR dam safety + floodplain mgmt

00013470

Mackert, Susan (DEQ)

From: Schneider, Jutta (DEQ)
Sent: Monday, April 07, 2014 8:58 AM
To: Mackert, Susan (DEQ)
Subject: Possum Point report

Hi Susan,

Just checking to see if you had any luck regarding the Possum Point report with risk assessment? Thanks!

Jutta

Mackert, Susan (DEQ)

From: Thomas, Bryant (DEQ)
Sent: Wednesday, April 30, 2014 7:24 PM
To: Mackert, Susan (DEQ)
Subject: FW: Coal Ash Impoundment Followup
Attachments: VA0002071.Groundwater Monitoring Requirements.pdf; Ash Pond Responses_NRO Mar 2014.docx

Here ya go.

From: Thomas, Bryant (DEQ)
Sent: Tuesday, March 18, 2014 5:19 PM
To: Steers, Jeffery (DEQ); Schneider, Jutta (DEQ)
Cc: Mackert, Susan (DEQ); Faha, Thomas (DEQ)
Subject: RE: Coal Ash Impoundment Followup

Jeff and Jutta,

Attached are responses to the questions below. Also attached are extracted pages from the Possum Point VPDES permit related to groundwater monitoring requirements.

Susan is the permit writer for this facility and spearheaded the effort to provide responses to the questions below (Thanks, Susan!).

Please let us know if you need any additional information or clarification on any of these responses.

-Bryant

From: Steers, Jeffery (DEQ)
Sent: Wednesday, March 12, 2014 8:17 AM
To: Sauer, Mark (DEQ); Thomas, Bryant (DEQ); Foster, Kip (DEQ); Kiracofe, Brandon (DEQ); Trent, Mark (DEQ); Adamson, Emilee (DEQ); Cunningham, Frederick (DEQ); Brockenbrough, Allan (DEQ); Bauer, Jaime (DEQ); Linderman, Curtis (DEQ); Daub, Elleanore (DEQ); Tuxford, Burton (DEQ); DeBiasi, Deborah (DEQ); Zahradka, Neil (DEQ); OConnell, Kathleen (DEQ); Artrip, Steve (DEQ); Shiflett, Sheri (DEQ)
Cc: Schneider, Jutta (DEQ); Davenport, Melanie (DEQ); Golden, James (DEQ)
Subject: Coal Ash Impoundment Followup

Greetings,

Thanks to everyone for indulging me with your participation in yesterday's coal ash discussion. As a follow up, please provide myself and Jutta Schneider answers to the questions below relative to facilities located in your regions. As I mentioned yesterday, Jutta and her staff will be working with the regions in doing an assessment of the current groundwater monitoring programs at our currently active and recently closed impoundments. Some of the answers may be the same across the regions as permit conditions may or may not be the same; nevertheless, we would like to confirm this.

1. Please provide the status of permitted facilities in your region (active, recently closed etc.) and describe the last time the VPDES permit was renewed for each impoundment.

2. Has your region reviewed and approved a closure plan for any regulated basins? If so, were their conditions in the approval to continue with post closure ground water monitoring, or any other post closure requirements? (please note if you are currently reviewing a plan for closure, please indicate as the Land Division may wish to exercise its authority to require some type of post closure permit or order requiring groundwater monitoring.)

3. For each permitted basin, has the Department previously approved a groundwater monitoring plan, and if so, is this information available for our review.

4. Please describe the frequency of groundwater monitoring for each permitted unit, include details about the constituents required for analysis.

5. Do regional office staff review the submission of groundwater data?

6. In reviewing data submissions, what criteria are staff using to determine impacts to groundwater?

7. For each permitted unit, please describe any past, current or future groundwater corrective action that the facility is/has/will be undertaking to address contaminated ground water.

8. What is the status of a ponds operated by ODEC in Halifax County (facility is the Clover Plant) and Duke in Giles County (Narrows)? Does this operation have a current or recently closed permitted basin used for the storage and management of coal ash? Please provide an immediate response to this question, as we are in the process of creating an inventory of VPDES permitted and Solid Waste permitted impoundments and landfills.

9. Who is the appropriate contact point person for each facility that can be available to provide information to CO staff during our review of the groundwater monitoring data?

The above questions are not all inclusive as Jutta and her staff may have additional questions related to the review of groundwater at these facilities. We would like to begin our review as soon as possible such that within the next 30 to 60 days we can determine what additional action items are needed to ensure ground water resources are protected near these operations. Thus I would appreciate a response to these questions within the next 7 to 10 days, or sooner if you can. Thanks and if you have any questions, please feel free to contact myself and/or Jutta.....

Jeff

Jeffery A. Steers, Director
Division of Land Protection & Revitalization
Virginia Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218
(804) 698-4079
jeffery.steers@deq.virginia.gov

A. Effluent Limitations and Monitoring Requirements

13. Groundwater Monitoring (Monitoring Wells ED-1, ED-3, ED-9R, ED-15, ED-24R, ED-32, ES-1, ES-3a, ES-4)

a. During the period beginning with the permit's effective date and lasting until the permit expiration date, the permittee is authorized to manage pollutants at Ash Pond D and Ash Pond E. The groundwater shall be monitored by the permittee as specified below.

Observation Wells				
Ash Pond D Stratum D ED-1, ED-3, ED-9R, ED-15, ED-24R, ED-32			Ash Pond E Stratum E ES-1, ES-3a, ES-4	
PARAMETER	GROUNDWATER MONITORING		MONITORING REQUIREMENTS	
	Limitations	Units	Frequency[1]	Sample Type
Static Water Level (mean sea level)	NL	Feet	Semi-Annual	Measurement
pH	NL	Standard Units	Semi-Annual	Grab
Conductivity	NL	µmhos/cm	Semi-Annual	Grab
Hardness (as $CaCO_3$)	NL	mg/L	Semi-Annual	Grab
Chlorides	NL	mg/L	Semi-Annual	Grab
Fluoride	NL	mg/L	Semi-Annual	Grab
Sodium	NL	mg/L	Semi-Annual	Grab
Potassium	NL	mg/L	Semi-Annual	Grab
Sulfate	NL	mg/L	Semi-Annual	Grab
Total Organic Carbon	NL	mg/L	Semi-Annual	Grab
Temperature	NL	°C	Semi-Annual	Grab
Dissolved Arsenic	NL	µg/L	Semi-Annual	Grab
Dissolved Barium	NL	µg/L	Semi-Annual	Grab
Dissolved Cadmium	NL	µg/L	Semi-Annual	Grab
Dissolved Copper	NL	µg/L	Semi-Annual	Grab
Dissolved Iron	NL	µg/L	Semi-Annual	Grab
Dissolved Mercury	NL	µg/L	Semi-Annual	Grab
Dissolved Lead	NL	µg/L	Semi-Annual	Grab
Dissolved Nickel	NL	µg/L	Semi-Annual	Grab
Dissolved Manganese	NL	µg/L	Semi-Annual	Grab
Dissolved Selenium	NL	µg/L	Semi-Annual	Grab
Dissolved Silver	NL	µg/L	Semi-Annual	Grab
Dissolved Vanadium	NL	µg/L	Semi-Annual	Grab
Dissolved Zinc	NL	µg/L	Semi-Annual	Grab
Phenol	NL	mg/L	Semi-Annual	Grab

[1] The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31.

NL = No limit; monitor and report.

Grab = An individual sample collected over a period of time not to exceed 15-minutes or time needed to collect proper sample amount.

A. Effluent Limitations and Monitoring Requirements

14. Groundwater Monitoring (Monitoring Wells ED-4, ED-5, ED-17, ED-26, ED-31, ED-33)

a. During the period beginning with the permit's effective date and lasting until the permit expiration date, the permittee is authorized to manage pollutants at Ash Pond D and Ash Pond E. The groundwater shall be monitored by the permittee as specified below.

		Observation Wells
Ash Pond D and Ash Pond E	Stratum B	ED-4, ED-5, ED-17
	Stratum E	ED-31
	Stratum F	ED-26, ED-33

PARAMETER	GROUNDWATER MONITORING		MONITORING REQUIREMENTS	
	Limitations	Units	Frequency[1]	Sample Type
Static Water Level (mean sea level)	NL	Feet	Annual	Measurement
pH	NL	Standard Units	Annual	Grab
Conductivity	NL	µmhos/cm	Annual	Grab
Hardness (as $CaCO_3$)	NL	mg/L	Annual	Grab
Chlorides	NL	mg/L	Annual	Grab
Fluoride	NL	mg/L	Annual	Grab
Sodium	NL	mg/L	Annual	Grab
Potassium	NL	mg/L	Annual	Grab
Sulfate	NL	mg/L	Annual	Grab
Total Organic Carbon	NL	mg/L	Annual	Grab
Temperature	NL	°C	Annual	Grab
Dissolved Arsenic	NL	µg/L	Annual	Grab
Dissolved Barium	NL	µg/L	Annual	Grab
Dissolved Cadmium	NL	µg/L	Annual	Grab
Dissolved Copper	NL	µg/L	Annual	Grab
Dissolved Iron	NL	µg/L	Annual	Grab
Dissolved Mercury	NL	µg/L	Annual	Grab
Dissolved Lead	NL	µg/L	Annual	Grab
Dissolved Nickel	NL	µg/L	Annual	Grab
Dissolved Manganese	NL	µg/L	Annual	Grab
Dissolved Selenium	NL	µg/L	Annual	Grab
Dissolved Silver	NL	µg/L	Annual	Grab
Dissolved Vanadium	NL	µg/L	Annual	Grab
Dissolved Zinc	NL	µg/L	Annual	Grab
Phenol	NL	mg/L	Annual	Grab

[1] The annual monitoring period shall be January 1 – December 31. NL = No limit; monitor and report.

Grab = An individual sample collected over a period of time not to exceed 15-minutes or time needed to collect proper sample amount.

1. Please provide the status of permitted facilities in your region (active, recently closed etc.) and describe the last time the VPDES permit was renewed for each impoundment.

   The Dominion – Possum Point Power Station (VA0002071) is an existing 1845 Mega Watt (MW) natural gas and oil fired steam electric generating station. The facility ceased the use of coal in March 2003, but maintains two ash ponds on site (D and E). While the Ponds D and E no longer receive ash, they remain active.

   Ash Pond D serves as a permanent repository for dredge spoil material and residuals related to the operation and maintenance of the Possum Point Power Station. Additionally, Ash Pond D may be used as a repository for dredge spoil material that is not related to operations at the Station provided the material originated from the Potomac River, Quantico Creek or public water bodies in the Quantico Creek watershed meeting the definition of State waters in Virginia.

   Sources contributing to Ash Pond E include Ash Pond D discharge, tank bottoms, storm water, Potomac River intake water, Internal Outfall 501 discharge and Internal Outfall 502 discharge.

   The permit was last reissued in April 2013, with an effective date of April 3, 2013. A minor modification of the permit was made to make corrections to typographical errors on May 30, 2013. The typographical errors were not associated with groundwater monitoring requirements.

2. Has your region reviewed and approved a closure plan for any regulated basins? If so, were their conditions in the approval to continue with post closure ground water monitoring, or any other post closure requirements? (please note if you are currently reviewing a plan for closure, please indicate as the Land Division may wish to exercise its authority to require some type of post closure permit or order requiring groundwater monitoring.)

   NRO has not reviewed or approved a closure plan for either of the ash ponds at the Dominion – Possum Point Power Station.

3. For each permitted basin, has the Department previously approved a groundwater monitoring plan, and if so, is this information available for our review.

   By letter dated April 3, 1013, minor revisions of the Groundwater Monitoring Plan for the Dominion - Possum Point Power Station were reviewed by NRO staff. This letter and the Groundwater Monitoring Plan are in ECM.

4. Please describe the frequency of groundwater monitoring for each permitted unit, include details about the constituents required for analysis.

   Please see the attachment to this response which details the groundwater monitoring requirements for Ash Pond D and Ash Pond E.

5. Do regional office staff review the submission of groundwater data?

   Yes. NRO coordinates with regional remediation staff with groundwater data and analysis. Their geologists/hydrogeologists provide technical input and review groundwater monitoring plans as well as submitted data.

6. In reviewing data submissions, what criteria are staff using to determine impacts to groundwater?

   The purpose of the groundwater monitoring at Dominion – Possum Point Power Station is to determine if the activities at the site are resulting or may result in violations of the State Water Control Board's Groundwater Standards and/or Antidegradation Policy for Groundwater. Criteria used for review are the Groundwater Standards as listed in 9VAC25-280-10 et seq

7. For each permitted unit, please describe any past, current or future groundwater corrective action that the facility is/has/will be undertaking to address contaminated ground water.

   The facility has not been subject to any corrective action(s).

8. What is the status of a ponds operated by ODEC in Halifax County (facility is the Clover Plant) and Duke in Giles County (Narrows)? Does this operation have a current or recently closed permitted basin used for the storage and management of coal ash? Please provide an immediate response to this question, as we are in the process of creating an inventory of VPDES permitted and Solid Waste permitted impoundments and landfills.

   Not applicable to NRO.

9. Who is the appropriate contact point person for each facility that can be available to provide information to CO staff during our review of the groundwater monitoring data?

   Susan Mackert it is the VPDES permit writer. Alex Wardle is the remediation staff now assigned to this facility for technical input regarding groundwater monitoring and data analysis.

Mackert, Susan (DEQ)

From: Thomas, Bryant (DEQ)
Sent: Wednesday, March 12, 2014 5:45 PM
To: Mackert, Susan (DEQ)
Cc: Doucette, Richard (DEQ); Faha, Thomas (DEQ); Sale, Cynthia (DEQ); Thompson, Alison (DEQ)
Subject: FW: Coal Ash Impoundment Followup

Susan,
I believe Possum Point has the only coal ash impoundment in our region. Please correct me if there is also one at Birchwood.

Would you please take the lead on preparing a response to Jeff's questions below. I believe you have worked with Kurt on the review of groundwater data as well as updates to the monitoring plans for Possum. With his transition to CO, I'm not sure how active he will remain in this capacity (...perhaps even more into the future ?). Please coordinate Cindy and Kurt on drafting a response, as appropriate.

Finally, let's plan to touch base tomorrow on some of the items below and before finalizing a response to send to CO.

Thank you.

-Bryant

From: Steers, Jeffery (DEQ)
Sent: Wednesday, March 12, 2014 8:17 AM
To: Sauer, Mark (DEQ); Thomas, Bryant (DEQ); Foster, Kip (DEQ); Kiracofe, Brandon (DEQ); Trent, Mark (DEQ); Adamson, Emilee (DEQ); Cunningham, Frederick (DEQ); Brockenbrough, Allan (DEQ); Bauer, Jaime (DEQ); Linderman, Curtis (DEQ); Daub, Elleanore (DEQ); Tuxford, Burton (DEQ); DeBiasi, Deborah (DEQ); Zahradka, Neil (DEQ); OConnell, Kathleen (DEQ); Artrip, Steve (DEQ); Shiflett, Sheri (DEQ)
Cc: Schneider, Jutta (DEQ); Davenport, Melanie (DEQ); Golden, James (DEQ)
Subject: Coal Ash Impoundment Followup

Greetings,

Thanks to everyone for indulging me with your participation in yesterday's coal ash discussion. As a follow up, please provide myself and Jutta Schneider answers to the questions below relative to facilities located in your regions. As I mentioned yesterday, Jutta and her staff will be working with the regions in doing an assessment of the current groundwater monitoring programs at our currently active and recently closed impoundments. Some of the answers may be the same across the regions as permit conditions may or may not be the same; nevertheless, we would like to confirm this.

1. Please provide the status of permitted facilities in your region (active, recently closed etc.) and describe the last time the VPDES permit was renewed for each impoundment.

2. Has your region reviewed and approved a closure plan for any regulated basins? If so, were their conditions in the approval to continue with post closure ground water monitoring, or any other post closure requirements? (please note if you are currently reviewing a plan for closure, please indicate as the Land Division may wish to exercise its authority to require some type of post closure permit or order requiring groundwater monitoring.)

3. For each permitted basin, has the Department previously approved a groundwater monitoring plan, and if so, is this information available for our review.

4. Please describe the frequency of groundwater monitoring for each permitted unit, include details about the constituents required for analysis.

5. Do regional office staff review the submission of groundwater data?

6. In reviewing data submissions, what criteria are staff using to determine impacts to groundwater?

7. For each permitted unit, please describe any past, current or future groundwater corrective action that the facility is/has/will be undertaking to address contaminated ground water.

8. What is the status of a ponds operated by ODEC in Halifax County (facility is the Clover Plant) and Duke in Giles County (Narrows)? Does this operation have a current or recently closed permitted basin used for the storage and management of coal ash? Please provide an immediate response to this question, as we are in the process of creating an inventory of VPDES permitted and Solid Waste permitted impoundments and landfills.

9. Who is the appropriate contact point person for each facility that can be available to provide information to CO staff during our review of the groundwater monitoring data?

The above questions are not all inclusive as Jutta and her staff may have additional questions related to the review of groundwater at these facilities. We would like to begin our review as soon as possible such that within the next 30 to 60 days we can determine what additional action items are needed to ensure ground water resources are protected near these operations. Thus I would appreciate a response to these questions within the next 7 to 10 days, or sooner if you can. Thanks and if you have any questions, please feel free to contact myself and/or Jutta.....

Jeff

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